UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/758,037	01/11/2001	Arthur W. Wetzel	044595-5002	8276

7590 02/25/2004

LAW OFFICE OF RICHARD W JAMES
25 CHURCHILL ROAD
CHURCHILL, PA 15235

EXAMINER	
AZARIAN, SEYED H	
ART UNIT	**PAPER NUMBER**
2625	7

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/758,037	ARTHUR W. WETZEL	
	Examiner	Art Unit	
	Seyed Azarian	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 January 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-8, 14-23 and 27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bacus et al (U.S. patent 5,428,690) in view Bacus et al (U.S. patent 6,272,235).

Regarding claim 1, Bacus (5,428,690) discloses a method and apparatus for automated assay of biological specimens comprises;

a plurality of first components for identifying tissue regions and determining locations of tissue on the slide (column 15, lines 29-45, determining the locations of point of interest);

a motorized stage where a frame image containing the entire slide is taken with a camera (Fig. 1, stage 65a and stepper motors 110 and 111, also column 6, lines 51-67);

and means for using information about the locations to generate control parameters for the motorized stage and the camera to ensure that a scanning process captures high quality images of only the tissue regions (column 7, lines 31-57, checking of the quality of the image).

However Bacus (5,428,690) is silent about "processing thumbnail image". On the other hand Bacus (6,272,235) teaches thumbnail images are digitally scanned and stored with their X-Y coordinate information for significant details (column 12, lines 17-28).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Bacus (5,428,690) analyzing tissue invention according to the teaching of Bacus (6,272,235) because it provides tiled digital images from a specimen, such as a microscope slide, which allows the user to select theron the points of interest at a higher magnification for desired image and improve accuracy.

Regarding claim 2, Bacus discloses the system, wherein the plurality of first components include an image cropping component for identifying tissue regions on the slide to be scanned, wherein the image cropping component (column 15, lines 29-45, determining the locations of point of interest);

determines an approximate location of a slide boundary by searching upper and lower intervals corresponding to regions expected to contain upper and lower edges of the slide (column 7, lines 31-75, adjustment of the up and down position and includes a focus routine which is periodically performed during tissue analysis);

re-examines the approximate location to determine a more accurate location; and removes portions of the image falling outside of the determined slide boundary (Fig. 5, column 8, line 53 through column 9, line 9, refer to overlap the longitudinal center line of the slide).

Regarding claim 3, Bacus discloses the system, wherein the image cropping component converts a copy of the thumbnail image to a grayscale image (column 7, lines 59 through column 8, line 7, intensity value is corrected by sending intensity control commands).

Regarding claim 4, Bacus discloses the system, wherein the image cropping component crops a color thumbnail image at estimated edge locations, wherein multiple values of each pixel in the color thumbnail image are used to achieve better results by identifying spurious features on the slide (column 8, lines 9-26, color balanced adjustment).

Regarding claim 5, Bacus discloses the system, wherein the image cropping component crops the color thumbnail image at estimated boundary locations and uniformly reduces the color thumbnail image size to produce a small thumbnail image of the slide for rapid visual slide identification (column 21, lines 15-24, small specimen on a large area at the low resolution (or reduces color)).

Regarding claim 6, Bacus discloses the system, wherein the image cropping component identifies pixel blocks that are likely to contain remaining boundary edges and flags these blocks as edges that should not be considered for high-resolution imaging (column 9, lines 51-66, refer to darker area in the cell and lighter area).

Regarding claim 7, Bacus discloses the system, wherein the plurality of first components include a tissue finding component that locates regions in the thumbnail image that contain tissue

of interest to a specialist (column 15, lines 29-45, determination of the location of points of interest).

Regarding claim 8, Bacus discloses the system, wherein a cropped grayscale image is inputted into the tissue finding component from a imaging cropping component, wherein the tissue finding component identifies tissue regions by applying a sequence of filters that incorporate knowledge of typical appearance and location of tissue and non-tissue slide regions and outputs a tiling matrix whose values indicate which tiles should be imaged (Fig. 11, column 10, lines 45-66, tissue sampling and display).

Regarding claim 15, Bacus discloses the system, wherein the frame image is a single macroscopic image (Fig. 1, element 11a).

Regarding claim 16, Bacus discloses the system, wherein the frame image is multiple macroscopic images (Fig. 1, elements 11a and 64a).

Regarding claims 14, 17, 18 and 27, it recites similar limitation as claims 1 and 8, are similarly analyzed.

Regarding claims 19 and 20, it recites similar limitation as claims 2 and 3, are similarly analyzed.

Regarding claims 21, 22 and 23, it recites similar limitation as claims 4, 5 and 6, are similarly analyzed.

3. Claims 9-13 and 24-26, are rejected under 35 U.S.C. 103(a) as being unpatentable over as applied to claims above, and further in view of Wong et al (U.S. 6,498,006).

Regarding claim 9, Bacus (5,428,690) and Bacus (6,272,235) are silent about "standard deviation". On the other hand Wong teaches the optical density of the negative controls equivalent to 4 standard deviation above the mean are considered to be positive.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made, to modify Bacus (5,428,690) and Bacus (6,272,235) invention according to the teaching of Wong because it provides a measure of the dispersion of a group of measurements relative to the mean (average) of that group, which can easily be implemented in an image device.

Regarding claim 10, Bacus discloses the system, wherein the intensities are used to differentiate tissue-containing regions from blank regions and other non-tissue containing regions (column 18, lines 5-18, refer to blank image).

Regarding claims 11-13, it recites similar limitation as claims 9 and 10, are similarly analyzed.

Regarding claims 24, 25 and 26, it recites similar limitation as claims 1, 8 and 10, are similarly analyzed.

Other prior art cited

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. patent (5,216,596) to Weinstein is cited for telepathology diagnostic network.

U.S. patent (5,287,272) to Rutenberg et al is cited for automated cytological specimen classification system and method.

U.S. patent (4,150,360) to Kopp et al is cited for method and apparatus for classifying biological cells.

U.S. patent (6,151,405) to Douglass et al is cited for system and method for cellular specimen grading.

U.S. patent (5,473,706) to Bacus et al is cited for method and apparatus for automated assay of biological specimens.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached at (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.
Status information about the PAIR system, see http:// pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2625
February 16, 2004

Jayanti K. Patel
Primary Examiner